Challenges Confronting Public Health Agencies

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As public health agencies prepare to counter the threats posed by biological weapons, what are their competing demands and responsibilities? What resources are available? How does this new mission fit with the profession's traditional objectives and capacities? What do we need to do?

Many individuals have important perspectives on these questions. Mine is that of someone who served first as a local health officer and then as a federal public health official. In addition, as New York City's health commissioner when the World Trade Center was bombed, the threat of terrorism has a grim reality for me. However, having witnessed the disruption, devastation, and death caused by that event, I can only imagine how much worse that devastation—and the associated morbidity and mortality—would have been had it involved the covert release of a biological weapon. Fortunately, it did not. Nonetheless, as health commissioner, I did have the opportunity to grapple with a wide range of infectious disease outbreaks and epidemics, from the small and routine to the much more large and exotic; the threat of imported disease in an international hub like New York City; the impact of newly emergent diseases ranging from problems like *Cyclospora* to HIV/AIDS; and resurgent diseases such as tuberculosis (TB), often in a new drug-resistant form.

Certainly, experiences as a local health officer have been critically important to me as I've taken on a broader role in the federal efforts to address emerging infections and bioterrorism and shape the bioterrorism program that the Department of Health and Human Services is trying to develop. I have little doubt that the issues being addressed by this conference are among the most central for the future in terms of protecting and promoting the health of individuals and communities and protecting our nation's security and that of the world.

My bias is to consider these issues along a continuum of infectious disease threats, both naturally occurring and intentionally caused. Bioterrorism clearly represents the extreme end of that continuum in terms of its potentially catastrophic consequences for health and the disruption and panic it will cause.

My discussion focuses on some of the important challenges that are placed squarely before us when addressing the problem of bioterrorism. In particular, I emphasize certain key areas of unfinished business—critical issues today and

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into the future—and do so in a balanced way that recognizes the perspectives of local, state, and federal public health agencies. Addressing these challenges will be crucial for local, state, and federal efforts in trying to counter the threat of bioterrorism. However, addressing these challenges will also strengthen the ability of public health agencies to meet their responsibilities to respond to naturally occurring infectious disease threats, both routine and extraordinary.

I believe that the first challenge remains communicating the importance of the threat and the unique and essential roles of public health agencies in concert with the medical and scientific community. The statement was made earlier that we could now put the era of consciousness-raising behind us and get on with the business of actually doing things. I am afraid that view is unduly optimistic. Although I could not agree more that we must get on with the business of doing and not just talking, we continue to need to get policymakers, legislators, and program planners to understand the threat of bioterrorism: that it is both real and different. Meaningful progress against this threat depends on understanding it in the context of epidemic disease. The paradigm is different than that for conventional terrorism or a chemical or nuclear attack. It requires different investments and different partners. Until the concept of what the true nature and scope of a bioterrorist event would be is fully recognized, our nation's preparedness programs will continue to be inadequately designed:

- The wrong first-responders will be trained and equipped.
- We will fail to fully build the critical infrastructure needed to detect and respond to a real bioterrorist event.
- The wrong research agendas will be developed.
- We will never effectively grapple with the longterm consequence-management needs that such an event would entail.

Frankly, if we look at what has been developed in the context of bioterrorism preparedness, urgent public health and medical care issues have been underdeveloped and underfunded. Of the roughly \$10 billion invested in counterterrorism efforts today, only a very small percentage is truly going into the support of activities that should be considered core elements of a coherent program to address needs posed by a bioterrorist threat.

The framework is there, but we need to strengthen and extend programs such as a robust public health infrastructure, including surveillance and lab capacity; innovative approaches to expanding the capacity and flexibility of the health care system in a catastrophic crisis; the pharmaceutical stockpile for civilian use; and an appropriate research and development agenda at the basic level of genomics, disease pathogenesis, and the human immune response as well as for new drugs, vaccines, and detection methodologies. In addition, we must focus more on prevention. As Amy Smithson pointed out, we are currently missing critical opportunities to support collaborative research efforts with former Soviet bioweaponeers and redirect their talents into prosocial biomedical research activities. Richard Butler's presentation also underscored the need for fuller engagement of the public health and the biomedical communities in designing constructive, positive strategies for nonproliferation of bioweapons.

In reflecting on an array of experiences and current activities, I am heartened that there is a greater understanding and awareness of what public health is and why it is important. With this comes a real opportunity to make a difference.

Certainly, in New York City, the resurgence of TB (including its more frightening form of multiple–drugresistant TB) helped to change the debate. We saw the mobilization of political will to address public health concerns that we had not witnessed before, because, for the first time, the potential economic and social impact of epidemic disease was strongly felt by critical leaders.

For example, during the height of our epidemic in New York City, the correctional officers threatened to go on strike because they believed-not inappropriately—that there were risks of TB communication to them working in New York City's vast system of prisons and jails. Had they gone on strike, there would have been a major disruption and a political crisis for City Hall. Such events helped mobilize attention and concern to the public health problems involved. Similarly, the headlines "Killer TB on Subways" in the New York Post helped them feel that they might have some public support for putting more money into TB prevention and control. That experience told us that once the issue was framed in a way meaningful to key political leaders and policymakers, it was possible to mobilize the commitment and ultimately the financial support to put critical programs into place. Fortunately, in the case of TB, it was not a complex program. Working within the framework of a clearly defined plan, we were able to swiftly implement effective measures, such as directly observed therapy, that in just a few years' time enabled us to dramatically turn the tide on TB.

This was an important demonstration of the effec-

tiveness of public health. The unexpected appearance of West Nile virus in this country represents another example of the broad ramifications, including political and economic, of a significant infectious disease outbreak as well as the requirements for an effective public health response. Today, the growing concerns about the bioterrorist threat give public health a new importance and offer us another chance to make significant strides forward.

It is critical now, more than ever, that we continue raising awareness about the importance of public health and then translating that awareness into real programs. In doing so, we must emphasize the basics at the state, local, and federal levels in terms of trained epidemiologists and infectious disease specialists; surveillance capacity, including appropriate lab capacity; enhanced information technology expertise and capabilities; and improved working relationships between the medical community and health departments that, as Marci Layton showed, were so essential in identifying the West Nile virus outbreak and triggering the rapid response. This, of course, is a two-way street. Physicians and the health care providers need to know what to report and to whom. When they report, they need to find a responsive health department that gives them critical feedback that affects their ability to care for patients.

We also need to recognize that at every level of government there must be accountability in terms of programs and funding. At different levels of government, core functions and responsibilities of a public health agency vary, but they are all critically important. Those various functions must be integrated and must reflect a robust, sustainable system of funding. There is often an unfortunate tendency to point fingers and suggest that someone else is responsible and someone else should pay. However, leadership at every level of government must understand the importance of these activities, be committed to funding them, and understand that if they do not, they are not serving the people who elected them and put their administrations into place. That is a continuing challenge.

As assistant secretary for planning and evaluation, I must also stress the importance of comprehensive planning. This too is an important challenge and must be done at the local, state, and federal levels. Planning is key to effective crisis management and response. Unfortunately, there is no one-size-fits-all plan that can be produced at the federal level and put on the shelves. It needs to be a dynamic process directly undertaken by localities and states in collaboration with the federal government.

The difficulties involved in managing an event will

be defined by the nature of organizational systems unique to specific states and localities and also, of course, by the characteristics of the pathogen involved and the circumstances of the exposure. The challenge of planning is enhanced by the fact that bioterrorism, in particular, is a low-probability but high-consequence event. It is often hard to engage attention, and it is also going to be very hard to sustain efforts into the future.

However, effective strategies must build on existing systems when possible but build in flexibility. We do not want to develop an entire ancillary system for responding to the bioterrorist threat. Rather, we should strive to integrate our thinking and planning into the continuum of infectious disease threats and potential disasters to which public health agencies are already charged to respond. The last thing we want is to find ourselves in the situation of trying out a plan for the very first time in the midst of a crisis. Instead, we want to find the systems that work in routine activities and then identify what we need to do to amplify or modify them to be appropriately responsive for these more acute and catastrophic situations. For example, for many reasons, we do not want to rely solely on the traditional systems of surveillance. We need to be innovative and creative in our thinking about much more real-time surveillance systems that will enable the kind of rapid detection that can lead to appropriate and effective interventions and response. Of course, we need to constantly integrate new technologies as they emerge into our strategies for response.

Throughout our work, partnerships are key, but bioterrorism raises additional challenges. These have been discussed already to some degree. Sadly, when responding to an infectious disease outbreak, it is difficult enough to get the medicine and public health communities to work fully together in the ways that are so critically important. In the context of bioterrorism, we are now talking about working with law enforcement and the intelligence community as well. These are partners that we have not historically worked closely with and that in some ways make us quite uncomfortable. Yet it will clearly be critical to our success. Many communities have demonstrated effective ways of partnering, and there is a great deal to learn from them as we continue to work at the state, local, and federal levels. Importantly, we must make sure that these partnerships are real, enduring, and institutionalized so that they are not just dependent on relationships that develop between individuals.

An additional challenge to the development of full partnership among the critical communities required for effective bioterrorism preparedness and response concerns the issue of security itself. Our department's inexperience dealing with classified documents, clearances, and other aspects of the world of security concerns made it that much harder for us to be fully engaged in national security discussions. The department is currently in the process of developing secure video conferencing capability, which will allow realtime communications in a crisis or on a routine basis with key partners in the security community talking about sensitive issues. However, for the longest time, an enormous number of activities went on and we were not part of those discussions. Even obtaining a secure fax was a challenge. For many reasons, it has been difficult for the department to be accepted as a full and legitimate partner as counterterrorism planning and discussions have gone forward. Certainly, further marginalization has occurred because of our inability to function easily in the world of security concerns. I can only imagine that at the state and local levels this is going to be even more critical over time.

When I was health commissioner in New York City in the 1990s, the issue of having a security clearance and dealing with secure documents was simply something that never came up. However, in terms of the kinds of issues that now need to be addressed, we will need to examine this in a much more focused way.

Returning to a more traditional, yet equally challenging partnership, controlling disease and caring for the sick will require a very deep engagement of the public health and medical community. There are many pressures on health care providers and the hospital community that limit their ability to prepare in some of the critical ways necessary to effectively handle a bioterrorist threat. The enormous downsizing that has occurred, the competitive pressures to cut costs, the "just-in-time" pharmaceutical supply and staffing approaches, and the limited capacity for certain specialty services (e.g., respiratory isolation beds and burn units) that may become critical in a biological or chemical terrorist attack all need to be recognized and addressed.

We must be realistic about the potential costs to these institutions and individuals as well as the enormous up-front investments if they are truly to prepare. In many ways, making those preparatory investments is a high-risk undertaking for a health care institution today. By preparing, you are also almost setting yourself up to incur a series of costs that may not be reimbursed after the crisis is over.

We know that we must find better ways to strategically support our health care institutions, because of the implications of a bioterrorist attack and the existing demands on the system, as evidenced by the fact that in the past year a routine flu season threatened to

overwhelm our system's capacity to respond. There is an urgent need to develop programs that target dollars for health care disaster planning and relief, including training, templates for preparedness, and efforts to develop strategies in collaboration with other critical partners for providing ancillary hospital support in the event of a crisis, whether it is through the army field hospital model or going back to what was done in the 1918 pandemic flu, when armories, school gymnasiums, and the like were taken over to provide medical care. In doing this, we need to support local and state planning efforts to assess community assets and capabilities, and we need to determine what federal supports can be brought to bear in a crisis.

In planning for an effective response, an array of legal concerns exist that remain unresolved. Issues range from such basic matters as declaration of emergency—Who are the existing authorities? Are they public health, or do they rest in other domains that will be relevant? What are the authorities that still need to be established?—to the ability to isolate, quarantine, or detain groups or individuals, the ability to mandate treatment or work, restrictions on travel and trade, the authority to seize community or private property (e.g., hospitals, utilities, medicines, or vehicles), and the ability to compel production of certain goods. Also, there is the issue regarding the use of pharmaceuticals or diagnostics that are not yet approved or labeled for certain uses in a crisis.

All of these questions involve many different levels of government and many different laws and authorities and raise many complex and intertwined ethical issues. In a systematic and coherent way, we must address this array of pressing issues and concerns, and not just what laws are in place or could be put in place but also what policies and procedures would be necessary to actually implement them.

Another major gap in current preparedness and planning efforts involves engaging the public and, importantly, working effectively with the public in the event of a crisis. We must begin now, with investments in research, to better understand how the public will react in the event of a bioterrorist attack. As a nation, we have little experience with this kind of disaster. By examining the response to natural disasters, such as fires and floods, as well as to terrorist bombings or attacks, we can glean some important insights. Yet we must also recognize that the fear of a silent, invisible killer such as an infectious agent will likely evoke a level of fear and panic substantially greater than what has occurred in response to those more "conventional" disaster scenarios. Certainly, the response to previous major disease epidemics-such as the outbreak of pneumonic plague in Seurat, India, in 1994—suggests a level of panic and civil disruption on a far greater scale.

Anyone who has ever dealt with disaster response knows that the manner in which the needs of the public are handled from the very beginning is critical to the overall response. In the context of a biological event, this will no doubt be even more crucial. Managing the "worried well" may interfere with the ability to manage those truly sick or exposed. In fact, implementation of disease control measures may well depend on the constructive recruitment of the public to behave in certain ways, such as avoiding congregate settings. In the final analysis, clear communication and appropriate engagement of the public are key to preventing mass chaos and enabling disease control as well as critical infrastructure operations to move forward.

Correspondingly, the needs and concerns of response personnel, including health care workers, must also be addressed. Again, prior experience with serious infectious disease outbreaks tells us that when this does not occur, essential front-line responders and key workers are just as likely as the public to panic if not flee. The mass exodus of health care workers after onset of the Ebola virus epidemic in Kikwit, Zaire, in the mid-1990s serves witness to this point.

This discussion brings me to the role of the media. The media represent a critical partner, key to our efforts in a crisis to communicate important information and reduce the potential for panic. Working with them in a crisis means working with them now in a process of ongoing and continuing mutual communication and education. We must strive for the development of a set of working relationships grounded in trust—trust that we will provide them with information in a timely and appropriate manner and in turn they will use that information in a responsible, professional way. No doubt there will always be tensions

between the desire to get out a good story and an appreciation of the complexities, sensitivities, and uncertainties inherent in such a crisis. However, stonewalling the press or viewing them as the enemy is virtually guaranteed to worsen the situation. Moreover, we will need the press as an absolutely essential partner in disseminating information to protect health and control disease.

My final concern is the issue of limited resources. Our nation has never been comfortable with issues of health care rationing or triage. Some of it goes on already, and we all know it. However, it may be very stark in the kind of crisis that we are talking about at this meeting. There may be delays in getting drugs and vaccines on site, or we may simply not have them. We are going to have to make hard decisions about who gets access to drugs or other pharmaceuticals. Unlike in many other circumstances, decisions will not be made simply on the basis of maximizing the preservation of life, but on maintaining critical infrastructure and supporting key workers, including health care workers. Thus, we must begin to think about whether we have a set of priority groups for the use of scarce resources and what that is going to be. Clearly, this represents an essential, yet enormously charged and complex undertaking.

We have been considering this in the context of pandemic flu, where we know there will be vaccine shortages. We need to think about it in the context of bioterrorism as well. We need to bring together a broad set of stakeholders, need to involve every level of government, and need, as a nation, to become comfortable with this situation in which we will almost certainly find ourselves.

I have only touched on some of the critical challenges that lie before us. They are complex and difficult, and we will probably never find completely acceptable or effective solutions. However, we are on a critical path. All of us are partners in this effort.